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the difficulty of getting Congress to make any appropriation for it. I copy Mr. Clay's letter. It reads:

"ASHLAND, 10 Sept., 1844.

"DEAR SIR :

"Absence from home and the pressure of a most burdensome correspondence have delayed the acknowledgment of the receipt of your favor of the 15th ultimo. I should be most happy to give you a satisfactory response to your inquiries respecting the electro-magnetic telegraph, but I fear I can say nothing that will in the least benefit you. Assuming the success of your experiments, it is quite manifest that it is destined to exert great influence on the business affairs of society. In the hands of private individuals they will be able to monopolize intelligence and to perform the greatest operations in commerce and other departments of business. I think such an engine ought to be exclusively under the control of the government, but that object cannot be accomplished without an appropriation of Congress to purchase the right of the invention. With respect to the practicability of procuring such an appropriation from a body governed by such various views, both of constitutional power and expediency, you are quite as competent to judge as I am. As the session of that body is now nigh at hand, I submit to you whether it would not be advisable to offer your right to it before you dispose of it to a private company or to individuals. If I understand the progress of your experiment, it has been attended with further and satisfactory demonstrations since the adjournment of Congress. I am,

"Respectfully, your friend and obedient servant,

"To ALFRED VAIL, Esq.

"H. CLAY."

These letters are only a few of a large number of all kinds and from many eminent people. The whole correspondence is full of strange and interesting matter. It shows in a beautiful light the character of Alfred Vail, and demonstrates, in the words of Amos Kendall, who knew both inventors intimately, that when justice is done the name of Alfred Vail will stand associated with that of Samuel F. B. Morse in the history and introduction into public use of the electro-magnetic telegraph.

FRANK G. CARPENTER.

VALUES AND WAGES IN MEXICO.

THE *Norte*, a newspaper of the city of Chihuahua, referring to my article on "Wages in Mexico," which appeared in THE NORTH AMERICAN REVIEW for January, in which I stated that the wages of field laborers range in Chihuahua from 18¾ cents to 25 cents maximum, says that they are not so low, and that, on the contrary, that state is perhaps one of those in Mexico where field hands and workmen in general are better paid. The wages of field laborers there, the *Norte* says, vary from 37½ cents minimum to \$2, the latter being the sum paid to cowboys who furnish their mounts.

Since the construction of the railroads, it is said, wages in general, and especially those paid to the poorest classes of laborers, have had a remarkable advance, which has been maintained, with a tendency to a further rise rather than a fall. For instance, bricklayers get at least \$1.25 per day, while a foreman bricklayer gets \$3 per day. It is difficult to get a servant for less than \$10 a month, besides board, and other laborers are paid on the same scale. The data I published were furnished to me by the officials of the Mex-

ican Government, who had taken great pains to obtain correct information on the subject, and represented the average wages in the different counties of the state; but if wages are higher in Chihuahua than stated, it will only strengthen the substance of my article.

In confirmation of the data contained in the article I will quote from the list of current prices of Mexican products which appears in the *Official Journal* of the Federal Government of Mexico, of December 15, 1891, the price of a *fanega* of corn, equivalent to about two bushels, in different parts of that country:

At Tepic (Territory of Tepic).....	\$1.87	At Allende (Chihuahua).....	\$1.50
At Guadalajara (Jalisco) . . .	\$2.25 to 2.50	At Alamos (Sonora).....	6.50
At Cuatzingo (Mexico).....	3.50	At Culiacan (Sinaloa).....	11.00

This remarkable difference in prices is noticed on some other grains and produce, such as beans, chickpeas, wheat, and barley, and is due to the different conditions of each locality, and especially to the abundance or scarcity of rain, which naturally affects the crops, and also to the difficulty of communication and the consequent high freights. Prices would find their level if grain could, for instance, be carried profitably from the places where it is abundant to those where the crops have failed or been poor. This state of affairs, however, shows the great chances which Mexico offers to business men.

M. ROMERO.

FLYING-MACHINES.

"Does the leetle, chatterin', sassy wren,
No bigger'n my thumb, know more than men?"—TROWBRIDGE.

THERE is nothing to prevent man from flying, like the eagle of the Alps or the condor of the Andes, except his want of inventive skill; and if the signs be true, this will not very much longer prevent the desired consummation. Nature has not given man wings; neither has she given him fins, yet he outstrips the strongest of the finny tribes in traversing the deep; she has not given him weapons, yet he vanquishes the fiercest warriors of the forest and jungle; she does not protect him from cold or heat, yet he is neighbor both to the polar bear and the tropical elephant.

There is no miracle in the swallow's arrowy flight; it only applies the well-known laws of dynamics. Darius Green's logic was good so far as it went. The trouble was not that

"The bluebird and phoebe
Are smarter'n we be,"

or that

"the bat
Had got more brains than's in his hat,"

but that his brains did not work long and hard enough over the problem of flying.

Man may equal and even surpass the swallow in speed, but he can never possess the swallow's perfect command of his movements in the air, to curvet and turn at sharp angles like a ray of light from opposing mirrors. Three physical laws preclude such a possibility.

First—The time required for the production, change in direction, or over-coming of motion, is inversely as the mass moved.

Second—The relative strength of a body, whether to resist or to exert force, diminishes with its magnitude.

Third—The relative sustaining effect of moving air upon a body diminishes with the magnitude of the body.

The smallest material thing in existence is the ultimate atom. This has infinite strength—*i. e.*, it is capable of resisting an infinite stress, and is